

**REMARKS**

By the foregoing Amendment Applicants have noted that although they provided a definition that "AKD" may be either alkyl ketene dimer or alkylene ketene dimer; they neglected to state that ASA can refer to either alkyl succinic anhydride or alkylene succinic anhydride with the former of being found on page 5 of the Specification and the latter being found on page 10, lines 2-3 of the Specification. Accordingly, the foregoing Amendment of the Specification does not add or raise the issue of new matter.

Reconsideration of the previous rejection of claims 48-56 and 60-64 under 35 U.S.C. of 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dilts et al. (U.S. Patent No. 6,576,049) is respectfully requested.

Initially, Applicants reminds the Examiner the Office has established guidelines for rejections of anticipation in which it is stated:

"a claim is anticipated only if each and every element as set forth the claim is found, either expressly or inherently described, made single prior art reference" (*citations omitted*);

See, MPEP 2131.

In view of the statement of the rejection it clearly fails to establish anticipation for each of the claimed limitations. For example, the Examiner has not pointed to any disclosure in the cited reference to show a paper stock composition containing 1-20 dry lbs./ton of stock and 35-40 dry lbs./ton of stock of an acrylic acid containing material. Although the Examiner refers to a ratio, such ratio is not anticipatory of the specifically claimed amounts and thus the previous rejection must fail.

However, Applicants have currently amended independent claim 48 to specify that the AKD (which may be either alkyl ketene dimer or alkylene ketene dimer defined in the Specification at page 5 is in the amount of 1-7 dry lbs./ton of stock. As specifying that the acrylic acid containing material is present in an amount at least 35 dry lbs/ton of stock the ratio of AKD: acrylic acid containing material is between 1:35 and 7:35. Either of the ratios is in the disclosure of the Dilts et al. patent. Furthermore, Dilts et al. only describes ratios between the "sizing agent(s)" and the "emulsion stabilizer" in which the emulsion stabilizer is present in an amount from about 9% to 400% by weight based on the total weight of the sizing agent present; See for example, Dilts et al. column 3, lines 21-26. Because Dilts et al. never describes the amount of AKD present in the "sizing agent" is impossible to determine the ratio of AKD to an acrylic acid containing material from the Dilts' disclosure. Since there is no possibility that Dilts et al. could either anticipate or make obvious the claimed invention, the rejection should be withdrawn.

As support for the claimed limitations of amended claim 48 are found in the original disclosure, for example, the second full paragraph last sentence on page 20 of the Specification and the recited limitations of amended claim 48 does not raise the issue of new matter and are expressly supported by the written description of the Specification and are not remotely taught or suggested by Dilts et al. disclosure, withdrawal of the rejection is requested.

Still further, however, previous claim 48 recited specific cross-linking agents and amended claim 48 has been expanded to include additional cross-linking agents with support also being found in the original disclosure. For example, in the paragraph under the heading "Cross-Linking Agent" beginning at the top of page 11 of the Specification. None of this expanded group of cross-linking agent is remotely

hinted at in the Dilts et al. disclosure and accordingly Dilts et al. does not establish a *prima facie* case of obviousness for amended claim 48. As previous claim 60 expressly recited the step of providing the paper stock composition in a headbox and as the Examiner recognizes on page 5, second full paragraph of the rejection that Dilts et al. "does not disclose a headbox (or a furnish comprising excess of water)", the previous rejection of claims 60 and 63 under 35 U.S.C. 102 was inappropriate as it could not possibly be made anticipated by the Dilts et al. reference.

Notwithstanding the foregoing Applicants respectfully submit that the amended claims are neither anticipated nor obvious over Dilts et al. Applicants note that Dilts et al. is a family member of a WO publication previously considered by the office and the foregoing comments relative to Dilts et al. also apply to that WO publication.

Applicants have added a clarifying amendment to claim 63 and as added new claims 65-70 with support for such new claims 65-70 being found in the original disclosure, for example, as to claim 65, page 11, lines 9-10, as to claim 66, page 8, lines 12-13, claim 67 in Specification, pages 5 and 14 as to claim 68, page 5, lines 17-18, and new claim 69 at page 5 of the specification, the foregoing amendment does not raise the issue of new matter and as they are dependent from presumable allowable claims, they also are allowable.

Reconsideration of the alternative rejection of claims 48, 50 — 54, 56 and 60– 64 under 35 USC 103 (a) as unpatentable over Guerro et al (US Patent 5,824,190) and Pandian et al (US Patent 5,362,573) in view of Carlson (US Patent 2,726,230) is respectfully requested.

Guerro et al. add AKD to polyacrylamide to obtain increase "dry strength" in paper. However, dry strength additives, such as that of Guerro et al., do not provide the wet strength required as a replacement for paraffin or wax coated papers used in the corrugated paper or box industry, and in addition introduce other deleterious problems into paperboard production.

It is known that elevated use of ASA/AKD/Rosin/Resin generates a severe reduction in tensile strength and additionally causes linting and dusting when such papers are made and used. Linting and dusting can occur at the paper machine as well as at convertors who use that paper in the corrugated paper or box industry.

This is because fibers, when exposed to the higher levels of ASA/AKD become so water resistant that the normal "knitting" of fibers on the paper machine does not occur. This affect in physical condition causes the individual fibers to "repel" one to the other. The repellency that occurs reduces severely the tensile strength of the paper. The only exception is paper deliberately "softened." However, high levels of a material, like the polyacrylamide of Guerro et al., does not create this softening.

The use of a material such as methyl methacrylate polymer (poly(methyl methacrylate) or "PMMA") enhances the lost tensile strength. Such enhancement routinely increases tensile strength from a negative 20% to a positive 20%, which is a 40% improvement in tensile strength. Thus, one familiar with the art of adding ASA/AKD/Rosin/Resin would have avoided using higher levels of dosage necessary to address the wide spread demand to replace paraffin wax and polyethylene (previous materials added to create water resistance but which inhibit repulping and thus recycling of corrugated paper/paperbox materials) because such direction

heretofore created unwanted non-conformance issues (linting and dusting discussed above) for the converters. The use of PMMA as the polymer addresses the needs of water repellency and improves tensile strength as well.

Thus, Claim 48 has been amended to include the limitation of "poly(methyl methacrylate)" as the acrylic acid containing material, which clearly avoids the combined teachings of Guerro et al., Pandian et al., and Carlson.

The subsequent addition of Dilts et al. as to claims 49 and 55 or alternatively as to claims 48-56 and 60-64 or even the addition of Bailey et al. do not correct the foregoing deficiency in the basic rejection.

Accordingly, withdrawal of all rejections are respectfully requested.

Applicants attach a Supplement Declaration that was required by the Office in order to refer to 37 CFR 1.56 rather than 1.56(a).

Accordingly, having fully responded to the preceding Office Action, favorable reconsideration and withdrawal of all rejections is respectfully requested.

Amendment to OA Dated January 23, 2008  
U.S. Appl. No. 10/691,700  
Atty. Docket No.: 8691.017.US0000

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 14-1437, under Order No. 8691.017.US0000.

Respectfully submitted,

/s/

Thomas P. Pavelko  
Registration No. 31,689

TPP/tnj  
Attorney Docket No.: 8691.017.US0000

NOVAK DRUCE & QUIGG, LLP  
1300 Eye Street, NW  
1000 West Tower  
Washington, D.C. 20005  
Telephone: (202) 659-0100  
Facsimile: (202) 659-0105

Date: April 23, 2008